

THE EFFECTS OF PROCESS CONDITIONS ON SURFACE ROUGHNESS  
OF PLASMA POLYMER COATINGS\*

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The heart of a laser fusion target is the fuel capsule. Target specifications require the capsule to be of uniform wall thickness with excellent surface finish. Fuel capsules are currently fabricated by depositing polymer on a suitable mandrel using an RF excited plasma.

The surface roughness of plasma polymer coatings is dependent on the process conditions during the coating run. The effects of these process conditions, including feedstock flow rate, chamber pressure, coating thickness and temperature of the coating substrate, are examined. Atomic Force Microscopy (AFM) is used to measure the RMS surface roughness of the deposited polymer and the power spectrum subsequently calculated. Other physical properties of plasma polymer are examined and will be reported.

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